ARMY PUBLIC SCHOOL RATNUCHAK
SESSION: 2018-19
WORKSHEET

CLASS X **MATHEMATICS**

Q.1 If the sum of the squares of zeroes of the quadratic polynomial $f(x) = x^2 - 8x + k$ is 40. Find the value of k.

Q.2 If α and β are the zeroes of quadratic polynomial $p(x) = x^2 - x - 4$, find the value of $\alpha^2\beta + \alpha\beta^2$

Q.3 Solve the following system of linear equations by cross-multiplication method :
$x + y = a - b$
$ax - by = a^2 + b^2$

Q.4 Using cross-multiplication, solve the following system of equations:
$px + qy = p - q$
$qx - py = p + q$

Q.5 Find the remainder when $x^3 + 3x^2 + 3x + 1$ is divided by $x+\pi$.

Q.6 Show that any numbers of the form 15^n, $n \in N$ can never end with the digit 0.

Q.7 Divide p(x) by g(x) and find the quotient and remainder when $p(x) = x^5 + x^4 + x^3 + x^2 + 2x + 2$ and $g(x) = x^3 + 1$ and verify the division algorithm.

Q.8 Prove that $\sqrt{11}$ is an irrational number.

Q.9 Draw the graph of the equations: $4x - y = 4$ and $4x + y = 12$
Determine the vertices of the triangle formed by the lines representing these equations and the x-axis. Shade the triangular region so formed and also find area.

Q.10 Ramesh travels 600 km to his home, partly by train and party by car. He takes 8 hours if he travels 120 km by train and the rest by car. He takes 20 minutes longer if he travels 200 km by train and the rest by car. Find the speed of the train and the car.

Q.11 If the squared difference of the zeros of the quadratic polynomial $x^2 + px + 45$ is equal to 144 , find the value of p

Q.12 Using prime factorisation method, find HCF and LCM of 72, 126 and 168. Also, show that HCF ×LCM ? Product of three numbers.

Q.13 Prove that the square of any positive integer is of the form 4m or 4m + 1 for some integer m.

Q.14 A boat goes 30 km upstream and 44 km downstream in 10 hours. In 13 hrs, it goes 40 km upstream and 55 km downstream. Determine the speed of the stream and that of the boat in still water.

Q.15 If α,β,γ be zeroes of polynomials $6x^3+3x^2- 5x+1$, then find the value of $\alpha^{-1}+\beta^{-1}+\gamma^{-1}$